

A REVIEW OF THE GENUS NEON SIMON, 1876 (ARANEAE, SALTICIDAE) FROM CHINA

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Abstract The Chinese species of the spider genus Neon are reviewed. Six species, including one new species, *N. wangi*, are studied. Figures of body parts and genital organs are provided to the new species.

Key words Taxonomy, Salticidae, Neon, new species, China.

The spider genus Neon was created by Simon (1876: 210) to accommodate *Neon reticulatus* (Blackwall, 1853). 22 species, including 5 from China, are reported worldwide (Platnick, 2004) (Table 1).

Recently, we examined the specimens of Neon in the Hunan Normal University in Changsha (HNU) and Institute of Zoology, Chinese Academy of Sciences in Beijing (IZCAS). One new species is described below and other known Chinese species are redescribed.

Abbreviations. AER-anterior eye row, AL-abdominal length, ALE-anterior lateral eye, AME-anterior median eye, AW-abdominal width, CL-carapace length, CW-carapace width, EFL-length of eye field, PER-posterior eye row, PLE-posterior lateral eye, TL-total length.

Measurements are given in millimeter (mm).

Neon Simon, 1876

Neon Simon, 1876. Les Arachnides de France, Vol. 3. Paris: 210.

Type species: *Salticus reticulatus* Blackwall, 1853, designation by Simon (1876).

Diagnosis. Small spiders. Carapace long and narrow with truncated front margin and round retromargin, cephalic region longer than thoracic region. Ocular area subsquare, length about three fourth of width, quadrangle length lightly longer than half length of carapace, AER as wide as PER, AER slightly recurved, PLE almost as big as ALE. Clypeus very short. Leg longest. Spines long and strong, but sparse; femora and patellae without spine. Male palp large, with tibial apophysis; embolus long, distal

portion thin and sometimes with coils. Epigynum with two large atria, sometimes with median septum; spermathecae with two chambers.

Distribution. Algeria, Azores, Bolivia, Britain, Canada, Cape Verde Island, China, Cuba, Finland, France, Indonesia, Ireland, Japan, Kazakhstan, Korea, Malaysia, New Guinea, Spain, Sweden, USA, Vietnam.

Key to the females of Neon from China

1. Epigynum without median septum *N. zonatus*
Epigynum with median septum 2
2. Median septum short, separated from atrium frame
..... *N. reticulatus*
Median septum long, connected with atrium frame 3
3. Frame of atrium longest, coiled with one and a half circles
..... *N. minutus*
Frame of atrium short, with less than one circle 4
4. Copulatory ducts long, folded and twisted much complicated
..... *N. wangi* sp. nov.
Copulatory ducts short and simply folded *N. levis*

1 Neon levis (Simon, 1871)

Attus levis Simon, 1871: 221.

Neon levis (Simon, 1871); Simon, 1876: 211; Zhou & Song, 1988: 4, figs. 6a-d; Hu & Wu, 1989: 379, figs. 282. 8-9; Song, Zhu & Chen, 1999: 536, fig. 3.

Neon laevis Simon, 1937: 1183, 1254, f. 1860-1862; Logunov, 1998: 17, f. 24, 30.

Diagnosis. The epigynum of this species is similar to that of *N. sumatarnus* (Logunov, 1998: 21, fig. 23), but its median septum much narrower posteriorly versus much narrower anteriorly in *N. sumatarnus*. The vulva of this species is similar to that of *N. wangi* sp. nov., but its copulatory ducts much shorter and folded much simpler.

Description. Female: TL 2.4. Carapace light

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brown, slightly elevated medially, with sparse white hairs. Sternum oval, yellowish brown with sparse black hairs. Chelicerae, endites and labium light brown. 2 promarginal teeth and 1 retromarginal. Leg greyish black, tibiae with 3 pairs of ventral spines, metatarsi with 2 pairs. Legs - with dark marks. Abdominal dorsum yellowish brown, with black hairs; median area with several black chevrons, lateral area with dark inclined streae.

Male. Unexamined.

Specimens examined. 1 female, deposited in HNU. China, Xinjiang Uygur Autonomous Region, Bohu County (41.9°N, 86.5°E), 10 Sep. 1985, collected by Mr. DAI Li-Gai.

Distribution. Palearctic. In China can be found in Xinjiang.

2 *Neon minutus* Zabka, 1985

Neon minutus Zabka, 1985: 420, figs. 372-377; Ikeda, 1995: 35, figs. 25-33, 45; Logunov, 1998: 20, f. 5-6, 11-12, 19, 25, 29, 34-41.

Neon rostratus Seo, 1995: 324, f. 1-7.

Diagnosis. The female genitalia organ is similar to that of *N. wangi* sp. nov., but differs in: 1) median septum much shorter; 2) atria much larger, its frame coiled in one and a half circles versus less than one circle in *N. wangi*; 3) copulatory ducts much shorter; 4) body with distinct markings versus no markings in *N. wangi*.

For the detailed description, see Logunov, 1998: 20, f. 5-6, 11-12, 19, 25, 29, 34-41.

Specimens examined. None.

Distribution. China (Taiwan), Korea, Vietnam, Japan.

3 *Neon ningyo* Ikeda, 1995

Neon ningyo Ikeda, 1995: 38, figs. 34-44, 46; Peng, Gong & Kim, 2000: 13, figs. 1-4.

Diagnosis. This species is closely related to *N. nojimai* (Ikeda, 1995: 34, figs. 20-24), but can be distinguished from the latter by: 1) papal organ with very long twisted band-shaped conductor absent from that of *N. nojimai*; 2) tibial apophysis much shorter and stouter; 3) body with two distinct longitudinal bands running from ALE ending at the posterior margin of abdomen versus no longitudinal bands in that of *N. nojimai*.

Description. TL 1.9. AER 0.65, PER 0.7, EFL 0.5, CL 0.9, CW 0.8, AL 1.0, AW 0.8. Carapace: light brown with black margin, hair sparse, lateral sides and anterior area of ocular area black; PME at the midpoint between ALE and PLE; two dark brown

longitudinal bands running from ALE ending at the posterior margin of carapace; fovea and radial grooves unclear. Sternum inverted pear-shaped, narrower posteriorly, yellowish brown with darker margin. Clypeus greyish brown, anterior margin greyish black, height longer than AME radius. Chelicera greyish brown, without tooth. Endites and labium light yellow. Legs yellowish brown with dark grey annuli and long spines. Abdomen cylindrical, slight narrower posteriorly; dorsum light brown, four dark grey longitudinal bands: two on lateral sides visible in lateral view, two on median area connected by five transverse bands. Ventral side greyish black, median area yellowish brown. Spinnerets yellowish brown.

Palpal organ. Embolus very thin and long, its basal portion band-shaped, coiled in a large circle, terminal portion filamental. Conductor very long, band-shaped and coiled. Tibial apophysis short finger-shaped, with much wider basal portion.

Female. Unexamined.

Specimens examined. 3 males deposited in HNU. China, Hunan Province, Dao County (25.5°N, 111.5°E), 5 Apr. 1992, collected by Mr. GONG Lian-Su.

Distribution. China (Hunan), Japan.

4 *Neon reticulatus* (Blackwall, 1853)

Salticus reticulatus Blackwall, 1853: 14.

Attus frontalis Westring, 1861: 587.

Euophrys frontalis L. Koch, 1877: 175.

Euophrys reticulata Menge, 1879: 497, pl. 82, f. 284.

Icius obliquus Banks, 1895: 98.

Neon reticulatus sphagnicola Dahl, 1926: 38.

Neon reticulatus (Blackwall, 1853) Simon, 1876: 210; Chen & Zhang, 1991: 313, fig. 332.

Diagnosis. The epigynum of this species is similar to that of *N. robustus* (Logunov, 1998: 19-20, figs. 27), but its median septum much shorter, and its atrium much smaller. The vulva of this species is similar to that of *N. levis*, but its primary and secondary receptacles are much bigger and shorter; copulatory ducts much longer.

Description. Female. Total length 2.9. Carapace greyish brown with black margin; ocular area about half long of carapace; surroundings of eyes black; thoracic region with black markings. Sternum oval and brown. Palp, endite and labium greyish brown. Legs yellowish brown with black annuli. Abdomen oval, yellowish white; with chevrons in posterior median area and reticulated markings in lateral areas. Ventral side also with reticulated markings.

Female genitalia. Epigynum with short band-

shaped median septum, atria small and C-shaped. Vulva with very developed primary and secondary receptacles, The secondary one about three times bigger than the primary one; copulatory ducts short and thin, bar-shaped.

Male. Unknown.

Specimens examined. 1 female, deposited in HNU. China, Zhejiang Province, Ningbo City (29.9° N, 121.5° E); 1 female, deposited in IZCAS. China, Jilin Province, Mt. Changbai, Sep. 1993; 2 females deposited in IZCAS. China, Liaoning Province, Qingyuan County, 6 June 1989.

Distribution. Holarctic. In China can be found in Provinces Jilin, Liaoning and Zhejiang.

5 *Neon wangi* sp. nov. (Figs. 1-4)

Description. Female. TL 5.4, AER 1.8, PER 1.75, EFL 1.0, AME 0.5, ALE 0.3, PLE 0.25, CL 2.2, CW 1.9, AL 3.2, AW 2.5. Legs I 4.6 (1.4, 1.6, 0.8, 0.8), II 4.3 (1.3, 1.6, 0.7, 0.7), III 4.7 (1.4, 1.6, 0.8, 0.9), IV 4.8 (1.5, 1.5, 1.0, 0.8); formula 4, 3, 1, 2. Carapace with elevated anterior portion and abrupt sloped posterior one; dark brown; black in margin, surroundings of eyes and laterals of ocular area; lateral sides and intermediates of anterior four eyes clothed in white short hairs; carapace surrounded with white band formed by hairs. Sternum elongated oval, dark brown, margin black with brown long hairs. Clypeus brown with brown long hairs, height about as long as AME radius. Chelicera brown, three small promarginal teeth, one big bifurcated retromarginal tooth, one small tooth

between promargin and retromargin. Endites and labium brown, distal areas lightly colored with white and brown hairs. Palp brownish grey to light yellowish brown. Legs brownish grey with black patches or annuli, clothed in white and brown hairs; spines dense and strong, three pairs on ventral sides of tibiae and , two pairs on ventral sides of metatarsi and . Abdomen broaden oval, dorsum grey without clear marking. Ventral side with wide median longitudinal greyish brown band, two lines of dots on this band, lateral areas grey. Spinnerets greyish brown.

Male. Unknown.

Holotype, female, deposited in HNU. China, Guizhou Province, Maolan Natural Reserve, Libo County (25.4° N, 107.9° E), 20 July 1996, collected by Dr. WANG Xin-Ping.

Diagnosis. The new species is closely related to *N. rayi* (Metzner, 1999: 185, figs. 31d-e), but differs in: 1) epigynum with long and narrow medium septum (wider and shorter in *N. rayi*); 2) copulatory ducts much longer, with more complex folding; 3) abdomen without markings (*N. rayi* with two distinct longitudinal bands).

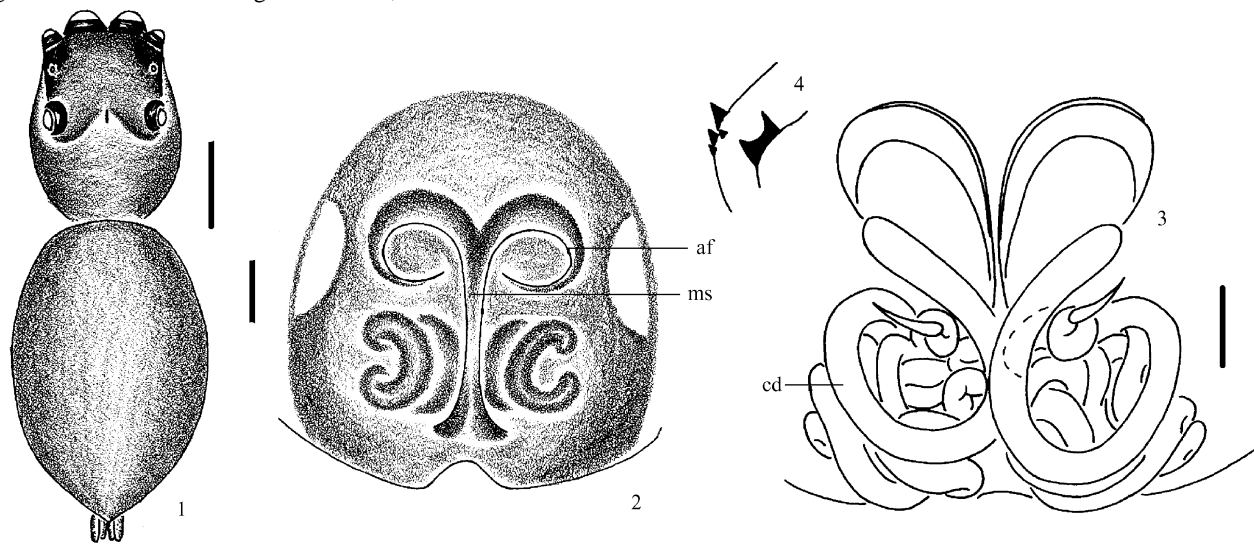
Etymology. The new species is named in honor of Dr. WANG Xin-Ping, who donated the type and is the leading specialist for taxonomy of Coelotine spiders.

Distribution. China (Guizhou).

6 *Neon zonatus* Bao & Peng, 2002

Neon zonatus Bao & Peng, 2002: 408, figs. 19-21.

Diagnosis. This species is similar to *N. minutus* Zabka, 1985 (Logunov, 1998: 20, figs. 37-40) in



Figs. 1-4. *Neon wangi* sp. nov. 1. Body, female. 2. Epigynum. 3. Vulva. 4. Teeth of left female chelicera. Scale bars: 1 = 1.00 mm, 2-3 = 0.10 mm. Abbreviations. af atrium frame, ms median septum, cd copulatory duct.

the appearance of the epigynum, but differs in: 1) vulva, especially the structure of the portion near the copulatory opening; and 2) abdominal patterns quite different, this species with wide transverse black bands extending from the left side to right, while *N. minutus* only has short irregular black longitudinal bars or transverse bands.

Description. Female. TL 2.25, CL 0.95, CW 0.80, AL 1.30, AW 1.10, AER 0.80, PER 0.85, EFL 0.55, AME 0.27, ALE 0.17, PLE 0.17. Carapace greyish brown with dense white hairs; lateral and anterior sides of ocular area, carapace margin black; median portion of ocular area light yellowish brown; cervical and radial grooves, fovea indistinct; cephalic region flat, thoracic region sharply sloping. Sternum inverse pear-shaped with sparse thin hairs; greyish brown with dark brown margin. Clypeus light brown, with large greyish-black marking; anterior margin black; area below AMEs with several long brown setae; height longer than 1/2 of the radius of AME. Chelicera light brown with large greyish-black longitudinal markings; 2 promarginal and 1 retromarginal teeth. Palp with long white hairs. Palp and legs light brown with distinct black patches or

longitudinal annuli; spines long and robust; tibiae and each with 3 pairs of long ventral spines, metatarsi and each with 2 pairs. Abdomen wide oval, slightly wider anteriorly. Dorsum light brown with distinct black arc-shaped markings, anterior 3 ones connected medially; posterior end black; a small black circular marking in front of posterior end. Ventral side: median area light brown with a greyish-black longitudinal band; lateral areas and posterior end with irregular reticulations. Spinnerets greyish brown. Epigynum weakly sclerotized, internal structure visible; 2 large circular atria encircled by circular bands. Vulva: copulatory canals very long, twisted or looped; spermatheca not distinctly swollen; copulatory opening small.

Male. Unknown.

Specimens examined. 1 female, deposited in HNU, China, Taiwan Province, Huisun Experimental Forest Station, Nantiou County (23.9° N, 120.7° E), 25 Apr. 1999, collected by Dr. WU Sheng-Hai.

Distribution. China (Taiwan).

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Table 1. Neon species reported worldwide.

Name of species	Distribution
<i>N. avalonus</i> Gertsch & Ivie, 1955	USA
<i>N. caboverdensis</i> Schmidt & Krause, 1998	Cape Verde Island
<i>N. convolutus</i> Denis, 1937	Azores, Algeria
<i>N. ellamae</i> Gertsch & Ivie, 1955	USA
<i>N. kiyotoi</i> Ikeda, 1995	Japan
<i>N. levis</i> (Simon, 1871)	Palaearctic
<i>N. minutus</i> Zabka, 1985	Korea, Vietnam, China, Japan
<i>N. nelli</i> Peckham & Peckham, 1888	USA, Canada
<i>N. nigriceps</i> Bryant, 1940	Cuba
<i>N. ningyo</i> Ikeda, 1995	Japan, China
<i>N. nojimai</i> Ikeda, 1995	Japan
<i>N. pictus</i> Kulczynski, 1891	Southeastern Europe to Central Asia
<i>N. pixii</i> Gertsch & Ivie, 1955	USA
<i>N. plutonus</i> Gertsch & Ivie, 1955	USA
<i>N. punctulatus</i> Karsch, 1880	Bolivia
<i>N. pusio</i> Simon, 1937	France
<i>N. rayi</i> (Simon, 1875)	Southern, Eastern Europe to Kazakhstan
<i>N. reticulatus</i> (Blackwall, 1853)	Holarctic
<i>N. robustus</i> Lohmander, 1945	Ireland, Britain, Sweden, Finland, Spain
<i>N. sumatranus</i> Logunov, 1998	Malaysia, Indonesia, New Guinea
<i>N. valentulus</i> Falconer, 1912	Europe to Central Asia
<i>N. zonatus</i> Bao & Peng, 2002	China

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中国新跳蛛属研究（蜘蛛目，跳蛛科）

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摘 要 研究了分布在中国的 5 种新跳蛛属蜘蛛，包括光滑新跳蛛 *Neon levis* (Simon, 1871)、微新跳蛛 *Neon minutus* Zabka, 1985、人纹新跳蛛 *Neon ningyo* Ikeda, 1995、网新跳蛛 *Neon reticulatus* (Blackwall, 1853)、王氏新跳蛛，新种 *Neon wangi* sp. nov. 和带新跳蛛 *Neon zonatus* Bao & Peng,

2002。对王氏新跳蛛，新种 *Neon wangi* sp. nov. 做了形态描述，并与近似种进行了比较。新种由美国佛罗里达大学王新平博士 1996 年 7 月 20 日采自贵州荔波县茂兰国家级自然保护区。模式标本保存在中国科学院动物研究所。

关键词 分类，跳蛛科，新跳蛛属，新种，中国。

中图分类号 Q959.226